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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,154	06/14/2002	Ronald G. Fink	6556.4814	5102

39670 7590 01/29/2007  
BOC, INC.  
575 MOUNTAIN AVE  
MURRAY HILL, NJ 07974-2064

EXAMINER
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MAYEKAR, KISHOR

ART UNIT	PAPER NUMBER
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1753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/064,154

Applicant(s)

FINK ET AL.

Examiner

Kishor Mayekar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-13,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-13,15 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 13 November 2006 has been entered.

### *Claim Objections*

2. Claim1 is objected to because of the following informalities: the recitation "an elongated high energy ... the air and the at least one target and the secondary element" contains more than one "and" (emphasis added). Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 4-13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable

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over Say et al. (US 5,790,934) in view of Owesen (US 5,891,399) and either of Dong et al. (US 5,514,492) or prior art disclosed in Tabata-Raissi et al. (US 6,315,870 B1). Say's invention is directed a device for photocatalytic treatment of fluids. Say discloses in Figs. 1, 2, 5 and 11 that the device comprises the recited casing, means for moving air, a target and elongated UV light source, wherein the target comprises photocatalyst coated fin (col. 3, lines 58-66), the photocatalyst is titanium dioxide and cocatalyst included silver and copper may be in conjunction with the photocatalyst (col. 5, lines 52-65). In the Examples, Say discloses the presence of water in air, hence the radicals are inherently generated. The differences between Say and the above claims are the wall mounting of the device, the detailing of the amount of the cocatalyst, and the recited provision of a secondary element.

As to the first difference, Owesen shows in a device for air purification wherein the device is suitable for ceiling mounting, wall mounting, stand-alone unit (col. 2, lines 1-5). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Say's teachings as shown by Owesen because the motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have, *In re Newell* 13 USPQ 2d 1248, *Fromson v. Advance Offset Plate* 225 USPQ 26; *In re Gyurik* 201 USPQ 552.

As to the second difference, although Say does not detail the amount of the

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cocatalyst disposed with the photocatalyst. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Say's teachings because it has been settled that proper adjustment of a known effective variable of a known or obvious process is within the capabilities of one having ordinary skill in the art. *In re Aller* 105 USPQ 233; *In re Boesch* 205 USPQ 215.

As the third difference, Tabata-Raissi shows in a device for photocatalytic treatment of fluids a prior art shown in Fig. 1c including Say '934 with a catalytic wall acted as a conduit for the fluid (col. 6, lines 22-46). Dong also shows in a device for photocatalytic treatment of fluids that a catalytic wall acts as a conduit for the fluid (Fig. 1). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of Say as shown by either Tabata-Raissi or Dong because this would promote the extent of the photocatalyzed reaction in the treatment of fluids.

As to the subject matter of claim 4, Say discloses that the target can be porous material (col. 3, line 62 through col. 4, line 8).

As to the subject matter of claim 5, Say discloses in Example the use of UV light emitting 254 nm.

As to the subject matter of each claims 8 and 9, Say discloses it in Fig. 5.

As to the subject matter of claim 10, the motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure

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to have, *In re Newell* 13 USPQ 2d 1248, *Fromson v. Advance Offset Plate* 225 USPQ 26;

*In re Gyurik* 201 USPQ 552.

As to the subject matter of each of claims 11-13, Say discloses it in col. 6, lines 40-43).

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Say '934 as modified by Owens '399 as modified by Owens and either prior art disclosed in Tabata-Raissi '870 or Dong '492 as applied to claims 1, 4-13, 15 and 16 above, and further in view of Heller et al. (US 5,616,532) and/or Saitou (US 2001/0052237 A1), both references cited in the last Office action. Say as applied above further discloses the deposition of the photocatalyst on the target by use of a binder (col. 6, lines 15-24). The difference between the references as applied above and the instant claims is the recited target comprised of a hydration compound of silica gel. Heller, a reference disclosed in Say in the above column's teachings, shows the use of binder of a hydrated silica (col. 5, lines 65-67) and silica gel (col. 6, lines 48-49). Saitou shows the deposition of titanium dioxide on silica gel in a device for removing odor producing ingredients by the use of photocatalyst [0029] and that the silica gel contains water by the absorbing of moisture [0031]. The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as shown by Heller and/or Saitou because the selection of any of known equivalent binders

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to secure the photocatalyst to the target would have been within the level of ordinary skill in the art and further of the inherent property of the silica gel to absorb moisture from the surrounding.

### *Response to Arguments*

6. Applicant's arguments filed 13 November 2006 have been fully considered but they are not persuasive because of the new ground of rejections as set forth in the paragraphs above.

### *Conclusion*

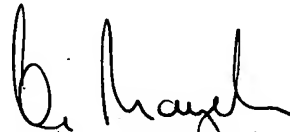
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Anderson et al. (US 5,035,784) is one of the prior art that Dong refers to in col. 1, lines 13-25.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Kishor Mayekar', is positioned above the printed name.

Kishor Mayekar  
Primary Examiner  
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